CALIFORNIA REGIONAL WATER QUALITY BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 92-050

NPDES PERMIT NO. CA 0028207

REISSUING WASTE DISCHARGE REQUIREMENTS FOR:

CONTRA COSTA WATER DISTRICT
CONTRA COSTA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region, hereinafter called the Board) finds that:

1. The Contra Costa Water District, hereinafter called the Discharger, submitted a Report of Waste Discharge dated May 11, 1992, applying for reissuance of a permit to discharge wastes from its water softening plant located in Martinez, Contra Costa County under the National Pollutant Discharge Elimination System (NPDES). The discharge is presently governed by Waste Discharge Requirements, Order No. 87-041 (NPDES Permit No. CA0028207 adopted by the Board on May 20, 1987.

2. A sodium ion exchange water softening unit operated by the Discharger was constructed in 1978 to soften 15.8 million gallons per day (mgd) of treated municipal wastewater from the Central Contra Costa Sanitary District (CCCSD). Due to regeneration of the softening units, approximately 1.0 mgd of brine and backwash wastewater will be discharged into the CCCSD's outfall and into the Suisun Bay, a water of the United States, at a point approximately 1,600 feet offshore at a depth of 24 feet below mean lower low water (Latitude 38 deg., 0 min., 41 sec., Longitude 122 deg., 4 min., 18 sec.).

3. The sodium ion exchange facility was constructed as part of a reclamation project which is implemented by both the Discharger and CCCSD. Water Reclamation Requirements were adopted by the Board for this project in Order No. 91-130. The reclamation facilities primarily consist of a filtration plant, the water softening plant, and disinfection facilities. The filtration plant is operated by CCCSD, and the water softening plant and disinfection facilities are operated by the Discharger. The reclamation facilities were constructed primarily to provide reclaimed water to local industries for cooling towers, boilers, and construction use. Attachment A is a map showing the locations of the reclamation facilities, including the water softening unit.

4. Prior to filtration, softening, and disinfection, the wastewater is treated at the CCCSD activated sludge treatment plant, which has an average dry weather flow capacity of 45 mgd. This plant treats domestic and industrial wastewater from Central Contra Costa County. Treatment consists of primary sedimentation, activated sludge secondary treatment, secondary clarification, disinfection, and dechlorination. Only a portion of the treated wastewater is directed to the reclamation facilities for further treatment.

5. The sodium ion exchange water softening unit has not been used as originally intended, and is not currently being utilized as part of the reclamation project. The unit was operational only during a demonstration phase of the project from July through December of 1988. The Discharger does not intend to utilize the water softening unit, and thus will not generate brine for discharge to the CCCSD outfall, through December of 1994. Although the plant is not active, the Discharger has applied for reissuance of this permit in order to maintain the option of discharging brine to the CCCSD outfall in the event that they decide to use the water softener. Current operations at the facility involve only the circulation and chlorination of water used for backwash of the CCCSD filters and for reuse by industrial users. These operations produce no discharge.

6. The State Water Resources Control Board (State Board) adopted the California Enclosed Bays and Estuaries Plan on April 11, 1991. This plan identifies water quality objectives for all enclosed bays and estuaries in the state, which includes the Suisun Bay, and a strategy for implementation of the objectives.

7. The Board amended its Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Board approved it on May 21, 1987. The Basin Plan identifies beneficial uses and water quality objectives for surface waters in the region, including the Suisun Bay, as well as effluent limitations and discharge prohibitions intended to protect beneficial uses.

8. This Order implements the plans, policies and provisions of the Board's Basin Plan and the State Board's California Enclosed Bays and Estuaries Plan.

9. The beneficial uses of Suisun Bay and contiguous water bodies include:

   a. Industrial Service Supply
   b. Navigation
   c. Water Contact Recreation
   d. Non-Water Contact Recreation
   e. Ocean Commercial and Sport Fishing
   f. Wildlife Habitat
   g. Preservation of Rare and Endangered Species
   h. Fish Migration
   i. Fish Spawning
   j. Estuarine Habitat

10. An Operation and Maintenance Manual is maintained by the Discharger for purposes of providing plant and regulatory personnel with a source of information describing all equipment, facilities, and recommended operation strategies, process control monitoring, and maintenance activities. In order to remain a useful and relevant document, the manual should be kept updated to reflect significant changes in facilities or activities.

11. This Order serves as an NPDES permit, adoption of which is exempt from the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code (California Environmental Quality Act) pursuant to Section 13389 of the California Water Code.

12. The Discharger and interested agencies and persons have been notified of the Board's intent to reissue requirements for the existing discharge and have been provided an opportunity for a public hearing and the opportunity to submit their written views and recommendations.

13. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code and regulations adopted thereunder, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, that the Contra Costa Water District (Discharger) shall comply with the following:

A. Effluent Limitations

1. The waste shall be limited to brine and backwash wastewaters resulting from the water softening process, and no additional pollutants shall be added.

2. The quantity of wastewater discharged to the CCCSD outfall shall not exceed 1 mgd.

3. The combined flow of the brine discharge and CCCSD's effluent shall not exceed the following limits:

Note: Sampling location to be determined in accordance with the requirements of this Order.

	Constituents	Units	Monthly Average	Daily Average	Daily Maximum	Instantaneous Maximum
a.	Total Suspended Solids	mg/l	15		30	--
b.	Total Chlorine Residual (1)	mg/l	--		--	0.0
c.	Arsenic (2)	ug/l	50	360		
d.	Cadmium	ug/l		10.7		
e.	Chromium (VI)	ug/l		110		
f.	Copper	ug/l		17		
g.	Lead	ug/l		23		
h.	Mercury	ug/l	0.08	21		
i.	Nickel	ug/l		65		
j.	Selenium	ug/l		50		
k.	Silver	ug/l		23		
l.	Zinc	ug/l		840		
m.	Cyanide	ug/l	--	10		

(1) Requirement defined as below the limit of detection in standard test methods.

(2) Average of all flow weighted samples collected over a 24 hour period.

4. pH: The pH of the discharge shall not exceed 9.0 nor be less than 6.0.

5. Toxicity (Bioassays): Representative samples of the effluent shall meet the following limit for acute toxicity:

   The survival of organisms in undiluted effluent bioassays shall be a median value of not less than 90 percent survival, and a 90 percentile value of not less than 70 percent survival. (Provision C.6 of this Order applies to these bioassays.)

6. Total Coliform Bacteria: The moving median value for the Most Probable Number (MPN) of total coliform bacteria in any five consecutive samples shall not exceed 240 MPN/100 ml; and, any single sample shall not exceed 10,000 MPN/100 ml.

7. Discharge of brine to the CCCSD outfall shall not cause violation of any chronic toxicity effluent limitations included in the NPDES permit for CCCSD, Order No. 89-170, and any amendments thereto, or subsequent permit reissuance. Compliance with this requirement shall be accomplished in accordance with Provision C.8 of this Order.

B. Receiving Water Limitations

1. The discharge of waste shall not cause the following conditions to exist in waters of the State at any place:

   a. Floating, suspended, or deposited macroscopic particulated matter or foam;

   b. Bottom deposits or aquatic growths;

   c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;

   d. Visible, floating, suspended, or deposited oil or other products of petroleum origin;

   e. Toxic or other deleterious substances to be present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge of waste shall not cause the following limits to be exceeded in waters of the State in any place within one foot of the water surface:

   a. Dissolved Oxygen 7.0 mg/l, minimum.

      The median dissolved oxygen concentration for any three consecutive months shall not be less than 80% of the dissolved

oxygen content at saturation. When natural factors cause lesser concentrations than those specified above, then the discharge shall not cause further reduction in the ambient dissolved oxygen concentration.

b.	Dissolved Sulfide	0.1 mg/l, maximum.
c.	pH	Variation from normal ambient pH by more than 0.5 pH units.
d.	Un-ionized Ammonia	0.025 mg/l as N, annual median; 0.16 mg/l as N, maximum.

3. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board as required by the Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the Clean Water Act, or amendments thereto, the Board will revise and modify this Order in accordance with such more stringent standards.

C. Provisions

1. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 87-041. Order No. 87-041 is hereby rescinded.

2. The Discharger shall comply with all sections of this Order upon commencement of discharge from the water softening process.

3. The Discharger shall comply with all applicable items of the attached "Standard Provisions and Reporting Requirements", dated December, 1986.

4. The Discharger shall comply with the Self-Monitoring Program for this Order as adopted by the Board and as may be amended by the Executive Officer.

5. Where concentration limitations in mg/l or ug/l are contained in this Permit, the following Mass Emission Rates also apply:

$$\text{Mass Emission Rate, in kg/day} = (CL) \times (3.785) \times (Q)$$
$$[\text{in lb/day} = (CL) \times (8.345) \times (Q)]$$

where: CL = Concentration Limit, in mg/l;
3.785 = conversion factor, for kg/day;
8.345 = conversion factor, for lb/day;
Q = Discharge Flow Rate, in mgd, averaged over the time interval to which the limit applies.

6. The Discharger shall submit a proposal, at least 90 days prior to the initiation of discharge, for a sampling location in the outfall where a representative sample of the combined flow of brine and CCCSD effluent can be taken. This location shall be used, upon approval by the Executive Officer, for taking samples to demonstrate compliance with the Effluent Limitations prescribed in this Order.

7. Bioassays:

   a. Compliance with Effluent Limitation A.5 of this Order shall be evaluated by measuring survival of test fishes exposed to undiluted effluent for 96 hours in static renewal bioassays, using 24-hour composite samples representative of the discharged effluent. Each fish specie tested represents a single bioassay.

   b. Two fish species shall be tested concurrently. These shall be the most sensitive two species determined from a single concurrent screening of the following three species: three-spine stickleback, rainbow trout and fathead minnow.

   c. Compliance monitoring with only one fish specie (the most sensitive, if known) may be allowed by the Board's Executive Officer, if both of the following conditions are met:

      i) The Discharger can document that the acute toxicity limit specified in Effluent Limitation A.5 of this Order has not been exceeded during the previous three years, or that acute toxicity has been observed in only one of the two fish species; and

      ii) A single screening using all three fish species confirms the documented pattern. All tests must be completed within ten days of initiating the first test.

8. The Discharger shall submit, for approval by the Executive Officer, a proposal for demonstration of compliance with Effluent Limitation A.7. This proposal shall be submitted at least 90 days prior to the initiation of discharge to the outfall. The tests proposed shall be performed with species currently being used by CCCSD during chronic toxicity testing, and the proposal shall include a suggested frequency for sampling.

9. The Discharger shall notify the Regional Board upon commencement of discharge. This notification shall include an estimated schedule for operation of the facility, e.g. whether operation will be intermittent, temporary, or long-term.

10. The Board may modify, or revoke and reissue, this Order and Permit if present or future investigations demonstrate that the discharges governed by this Order are causing or significantly contributing to adverse impacts on water quality and/or beneficial uses of the receiving waters.

11. The Discharger shall review, and update as necessary, its Operations and Maintenance Manual, annually, or within 90 days of completion of any significant facility or process changes. The Discharger shall submit to the Board, by April 15th of each year, a letter describing the results of the review process including an estimated time schedule for completion of any revisions determined necessary, and a description or copy of any completed revisions.

12. The Discharger shall review and update as necessary, by December 31, annually, its contingency plan as required by Board Resolution No. 74-10. The discharge of pollutants in violation of this Order where the Discharger has failed to develop and/or implement a contingency plan will be basis for considering such discharge a willful and negligent violation of this Order pursuant to Section 13387 of the California Water Code.

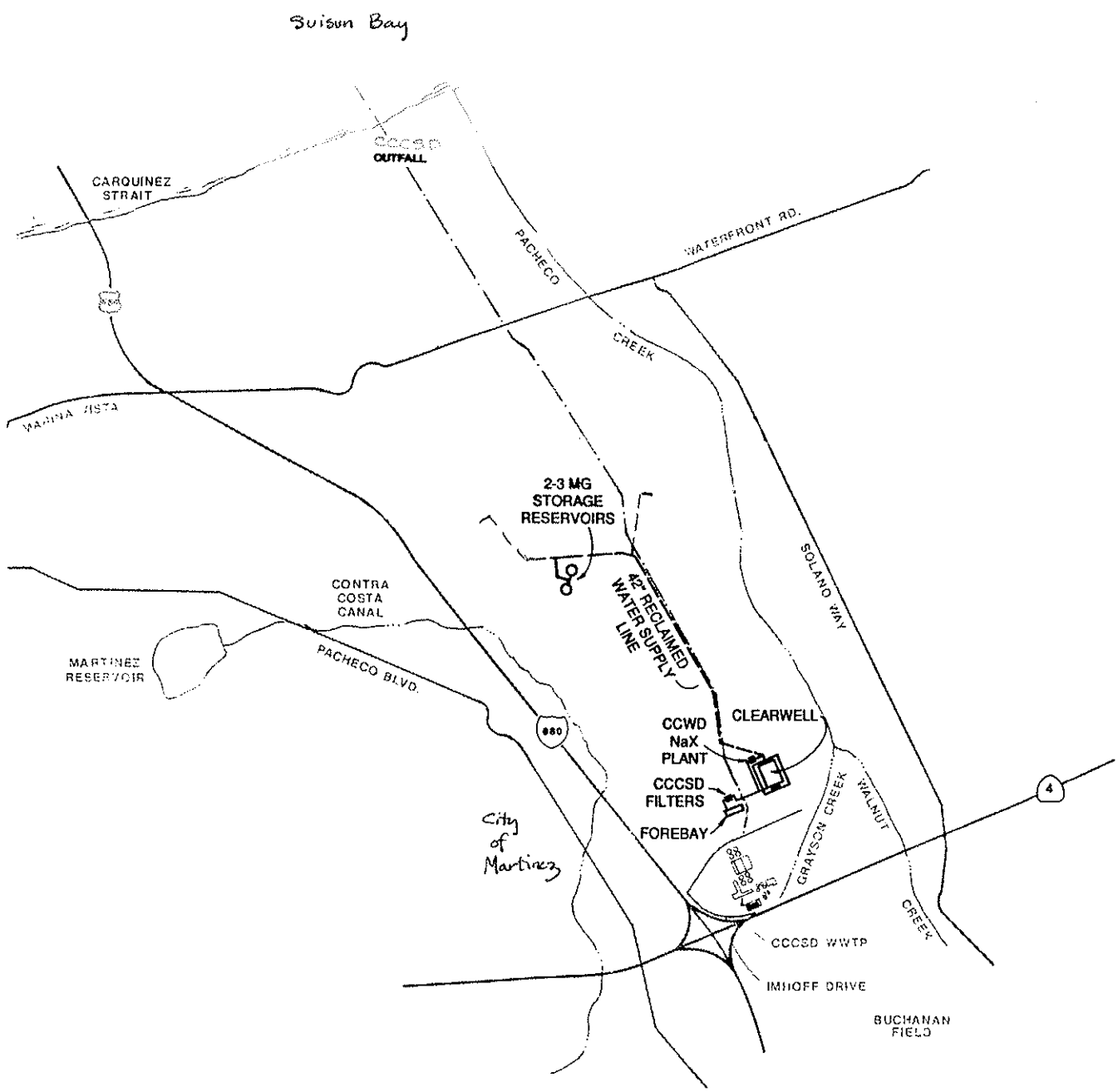
13. This Order expires May 20, 1997. The Discharger must file a Report of Waste DIscharge in accordance with Title 23, Chapter 3, Subchapter 9 of the California Administrative Code not later than 180 days in advance of such expiration date as application for issuance of new waste discharge requirements.

14. This Order shall serve as a National Pollutant Discharge Elimination System Permit pursuant to Section 402 of the Clean Water Act or amendments thereto, and shall become effective 10 days after the date of its adoption provided the Regional Administrator, Environmental Protection Agency, has no objections. If the Regional Administrator objects to its issuance, the permit shall not become effective until such objection is withdrawn.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region on May 20, 1992.

STEVEN R. RITCHIE
Executive Officer

Attachments
- o Attachment A - Map
- o Self-Monitoring Program
- o Standard Provisions and Reporting Requirements, December 1986
- o Resolution No. 74-10



CCWD NaX PLANT = Sodium Ion Exchange Water Softening Plant

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ATTACHMENT A

CONTRA COSTA WATER DISTRICT
SODIUM ION EXCHANGE
WATER SOFTENING PLANT

DRAWN BY: KRH	DATE: April 13, 1992	DRWG. NO.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

CONTRA COSTA WATER DISTRICT

CONTRA COSTA COUNTY

NPDES PERMIT NO. CA0028207

WASTE DISCHARGE REQUIREMENTS
ORDER NO. 92-050

CONSISTS OF

PART A, dated December 1986

AND

PART B

Contra Costa Water District - NPDES Permit No. CA0028207
Order No. 92-050

SELF-MONITORING PROGRAM - PART B

I. DESCRIPTION OF SAMPLING STATIONS

NOTE: A sketch showing the locations of the stations described below shall accompany each monthly report, and the Annual report for each calendar year.

A. EFFLUENT

Station	Description
E-001	At any point in the CCCSD outfall at which all wastewater from the water softening facility is present.
E-001-D	At any point in the disinfection facilities for at which point adequate contact with the disinfectant is assured.

B. RECEIVING WATERS

Station	Description
C-R	At a point in Suisun Bay, located 1,000 feet up current from the diffuser section of the outfall line.
C-1	At a point in Suisun Bay, located within 25 feet of the point of discharge from the outfall diffuser section.
C-2	At a point in Suisun Bay, located 100 feet generally west from the diffuser section of the outfall line.
C-3	At a point in Suisun Bay, located 100 feet generally north from the offshore end of the diffuser section of the outfall line.
C-4	At a point in Suisun Bay, located 100 feet generally east from the diffuser section of the outfall line.
C-5	At a point in Suisun Bay, located 100 feet generally south from the diffuser section of the outfall line.

C. LAND OBSERVATIONS

Station	Description
P-1 thru P-'n'	Located along the periphery of the waste treatment or disposal facilities, at equidistant intervals, not to exceed 200 feet.

II. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be that given as Table I.

III. MODIFICATIONS OF PART A

A. Self-monitoring reports shall be submitted quarterly after discharge commences.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in the Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Regional Board Order No. 92-050.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

3. Is effective on the date shown below.

STEVEN R. RITCHIE
Executive Officer

Effective Date May 20, 1992

Attachment:

A. Table I with Table I Footnotes

CONTRA COSTA WATER DISTRICT - NPDES Permit No. CA0028207
Order No. 92-

TABLE 1

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001			E-001-D			All C Stations
TYPE OF SAMPLE	G	C-24	Cont	G	C-24	Cont	G
Flow Rate (mgd)			Cont				
BOD, 5-day, 20°C, or COD (mg/l & kg/day)							
Chlorine Residual & Dosage (mg/l & kg/day)				H	(or Cont)		
Settleable Matter (ml/l-hr. & cu. ft./day)							
Total Suspended Matter (mg/l & kg/day)		W					
Oil and Grease (mg/l & kg/day)							
Coliform (Total or Fecal) (MPN/100 ml) per req't				W			
Fish Tox'y 96-hr. TL % Surv'l in undiluted waste		M					
Ammonia Nitrogen (mg/l & kg/day)		3M					M
Nitrate Nitrogen (mg/l & kg/day)		3M					
Nitrite Nitrogen (mg/l & kg/day)		3M					
Total Organic Nitrogen (mg/l & kg/day)		3M					
Total Phosphate (mg/l & kg/day)		3M					
Turbidity (Jackson Turbidity Units)		M					M
pH (units)	D						M
Dissolved Oxygen (mg/l and % Saturation)	D						M
Temperature (°C)	D						M
Apparent Color (color units)							
Secchi Disc (inches)							
Sulfides (if DO<5.0 mg/l) Total & Dissolved (mg/l)	W						
Arsenic (mg/l & kg/day)		Q					
Cadmium (mg/l & kg/day)		Q					
Chromium, Total (mg/l & kg/day)		Q					
Copper (mg/l & kg/day)		Q					
Cyanide (mg/l & kg/day)		Q					
Silver (mg/l & kg/day)		Q					
Lead (mg/l & kg/day)		Q					

TABLE 1 (continued)

SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

Sampling Station	E-001			E-001-D			All C Stations						
TYPE OF SAMPLE	G	C-24	Cont	G	C-24	Cont	G						
Mercury (mg/l & kg/day)		Q											
Nickel (mg/l & kg/day)		Q											
Zinc (mg/l & kg/day)		Q											
Phenolic Compounds (mg/l & kg/day)													
All Applicable Standard Observations	W						3M						
Bottom Sediment Analyses and Observations													
Total Ident. Chlor. Hydrocarbons (mg/l & kg/day)													
Chronic Toxicity (1)													

LEGEND FOR TABLE

TYPES OF SAMPLES

G = grab sample
C-24 = composite sample - 24-hour
C-X = composite sample - X hours (used when discharge does not continue for 24-hour period)
Cont = continuous sampling
DI = depth-intergrated sample
BS = bottom sediment sample
O = observation

TYPES OF STATIONS

I = intake and/or water supply stations
A = treatment facility influent stations
E = waste effluent stations
C = receiving water stations
P = treatment facilities perimeter stations
L = basin and/or pond levee stations
B = bottom sediment stations
G = groundwaters stations

FREQUENCY OF SAMPLING

E = each occurence
H = once each hour
D = once each day
W = once each week
M = once each month
Y = once each year

2/H = twice per hour
2/W = 2 days per week
5/W = 5 days per week
2/M = 2 days per month
2/y = once in March and once in September
Q = quarterly, once in March, June, Sept. and December

2H = every 2 hours
2D = every 2 days
2W = every 2 weeks
3M = every 3 months
Cont = continuous

(1) Pursuant to Provision C.8 of Order No. 92- , and as required by the Executive Officer.